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**From:** Briggs - CDPHE, Kevin [kevin.briggs@state.co.us]  
**Sent:** 3/10/2017 12:57:30 PM  
**To:** Ralph Morris [rmorris@ramboll.com]  
**CC:** Tonnesen, Gail [Tonnesen.Gail@epa.gov]  
**Subject:** Re: FW: International Emissions Contributions

I'm not sure how far out in the Pacific domestic aircraft go before landing on coastal airports. I will defer to you all for your best judgement.

That said, I think the military fly a lot of routine sorties over the Pacific as part of the homeland security. Since military aircraft (and ships) are usually fairly dirty from an emissions standpoint, they could make a difference in the BC.. But we don't have an emission inventory for military aircraft (or ships) over the Pacific.

Basically, I think your proposed GEOS-Chem boundary is probably OK.

Kevin Briggs  
303-692-3222 | [kevin.briggs@state.co.us](mailto:kevin.briggs@state.co.us)

On Thu, Mar 9, 2017 at 6:32 PM, Ralph Morris <[rmorris@ramboll.com](mailto:rmorris@ramboll.com)> wrote:

Gail and Kevin,

For the no international emission GEOS-Chem run we are doing for RAQC we need to decide how far off the coast we should retain aircraft and shipping emissions as being part of the U.S. Ken suggested I get your two opinions on the proposed map below. I don't think it will make a big difference. Reminder that we are just talking about aircraft and shipping emissions in this case.

Your prompt reply would be appreciated as we are a little behind on this task.

Ralph

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**From:** Ken Lloyd [mailto:[klloyd@raqc.org](mailto:klloyd@raqc.org)]  
**Sent:** Thursday, March 9, 2017 2:30 PM  
**To:** Ralph Morris; Amanda Brimmer  
**Subject:** RE: International Emissions Contributions

As a non-modeler, I really don't have any basis to give any technical input, even on a subjective decision. I suggest we run this by Kevin Briggs and Gail Tonneson to get their input.

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**From:** Ralph Morris [<mailto:rmorris@ramboll.com>]

**Sent:** Thursday, March 09, 2017 1:38 PM

**To:** Amanda Brimmer; Ken Lloyd

**Subject:** International Emissions Contributions

Amanda and Ken,

For the GEOS-Chem no non-US anthropogenic emissions sensitivity test we can turn off all non-US anthropogenic emissions pretty easily except for aircraft and shipping.

For aircraft and shipping we need to define a box around the U.S. to tell GEOS-Chem where to zero-out the emissions (non-US) and where to leave the emissions in (US). After looking at how the GEOS-Chem modelers (looking n~400 km from US coastline) have done their U.S. Background (USB) ozone runs (a similar although reversed exercise where just US anthropogenic emissions are eliminated) they suggest the box below where we would zero out all aircraft and shipping emissions outside of the box.

As this is a subjective decision I wanted to get your input on it.

Ralph



Sincerely,

**Ralph Morris**

Managing Principal

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